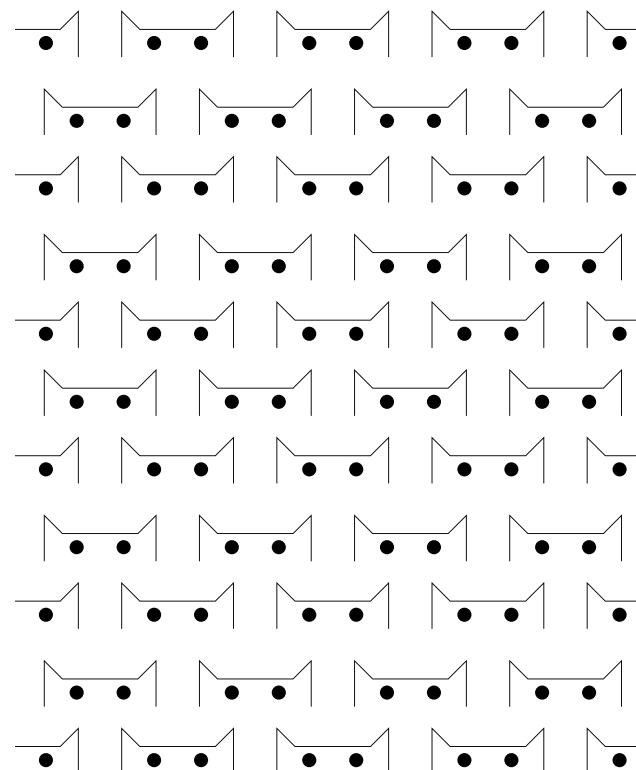
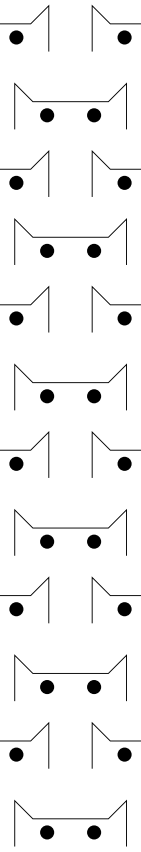
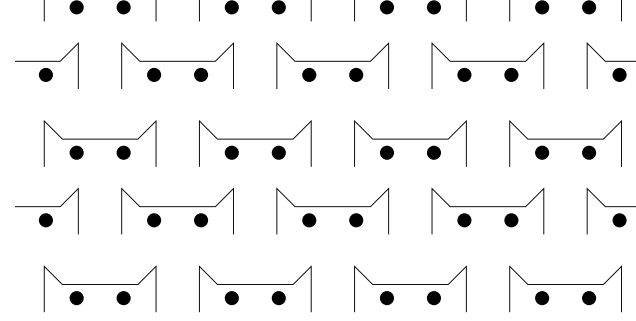


PRODUCT CATALOG



CYBERSTEEL



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24%

COMPANY'S SHARE
ON THE RUSSIAN
MARKET



CYBERSTEEL AT A GLANCE

CYBERSTEEL is Russia's leading supplier of stainless steel tubular products with a domestic market share of 24%.

CYBERSTEEL was launched in 2020 as part of one of Russia's well-established largest industrial sites with 60 years of unique experience in developing, researching and producing stainless steel pipes. The company boasts sophisticated technical capabilities and advanced equipment, while also having a proven track record of supplying tubular products to a world-known companies from the nuclear, power generation, aerospace, engineering, chemical, oil & gas and other sectors. CYBERSTEEL has spent a total of \$ 20.3 mln on manufacturing improvements.

WE ARE LEVERAGING ADVANCED TECHNOLOGIES AND DIGITAL SOLUTIONS TO BUILD A CUSTOMER-ORIENTED BUSINESS.

CYBERSTEEL relies on a team of highly qualified professionals trained under the Future of White Metallurgy programme that was named the best dual education training programme for high-tech industries.

CYBERSTEEL's management systems are all compliant with international quality and environment standards.



OUR CREDENTIALS

THE COMPANY PRODUCES CUTTING-EDGE SEAMLESS STAINLESS STEEL PIPES FOR THE NUCLEAR, POWER GENERATION, AEROSPACE, ENGINEERING, CHEMICAL, OIL & GAS AND OTHER SECTORS IN RUSSIA AND BEYOND.



NUCLEAR ENERGY

- Kursk (Russia)
- Akkuyu (Turkey)
- Kudankulam (India)
- Rooppur (Bangladesh)
- Xudapu (China), etc.



OTHER POWER GENERATION

- Primorskaya GRES operated by Siberian Generating Company (Russia)
- Tomskaya CHPP-3 part of Tomsk Generation (Russia)
- Kuchuksulphate's CHPP (Russia)
- Ekibastuz TPP-2 named after Bulat Nurzhanov and operated by Samruk-Energy (Kazakhstan), etc.



AEROSPACE

- Tubing for aircraft



SHIPBUILDING

- Tubing for vessels



PETROCHEMICAL

- Moscow refinery
- Omsk refinery



CYBERSTEEL

QUALITY MANAGEMENT SYSTEM

The quality management system (QMS) of CYBERSTEEL was certified in 2020. The compliance of CYBERSTEEL's QMS and production facilities with the requirements of international and industry standards and other applicable regulations is confirmed by Russian and foreign certification authorities. There are also relevant certificates and declarations in place to confirm the conformity of the company's products to the technical regulations of the Customs Union.

Based on the requirements of the environmental management system, the management team of CYBERSTEEL works continuously to minimise its potential environmental impact by implementing best available techniques in the production process.

CERTIFICATE NO.	COMPLIANCE WITH THE FOLLOWING REQUIREMENTS	ISSUING ORGANISATION
TIC 15 100 2211333 / TIC 15 104 221945	ISO 9001:2015 ISO 14001:2015	TÜV Thüringen (Germany)
01 2627 BG/MI-200011.00	EU Directive 2014/68/EU Technical Rules AD2000-Merkblatt WO/TRDI00 Applies to pipes through: <ul style="list-style-type: none"> • EN 10216-5 • DIN 17458 • ASTM A213M/ASME SA213 • ASTM A312M/ASME SA312 	TÜV Rheinland (Germany)
Manufacturer Recognition Certificate No. 20.51348.130	ASTM A312/A312M-19 Standard Specification for Seamless, Welded, and Heavily Cold Worked Austenitic Stainless Steel Pipes	Russian Maritime Register of Shipping
Certificate of the Manufacturer's QMS Compliance No. 20.51350.130	EN 10216-5:2013 Seamless Steel Tubes for Pressure Purposes	
Manufacturer Approval Certificate No.70469638-120.02-17284	Regulation on Equipment Procurement Process and Manufacturer Approval for Nuclear Facilities built in the Republic of Turkey	NDK (Republic of Turkey)
Registration confirmation No. 21056	Confirmation of registration in the People's Republic of China of foreign organizations engaged in activities related to civil nuclear safety equipment	NNSA (People's Republic of China)
Permission No. M-262/1-21	Permission for the production of hot-rolled and cold-worked stainless steel pipes	Polish Technical Supervision Office
EAEU No. RU D-RU.AY54.V.03411/20	Technical Regulation of the Customs Union No. TR TS 032/2013 On the Safety of High Pressure Equipment	Test Tatarstan Republican Certification Methodology Centre, Kazan
	ASTM A312/A312M-19 Standard Specification for Seamless, Welded, and Heavily Cold Worked Austenitic Stainless Steel Pipes	

* Cybersteel can supply pipes made in accordance with specific individual requirements (technical assignment, technical specifications, etc.) on condition that the customer provides the initial technical requirements for pipes (pipe parameters).

SEAMLESS STAINLESS STEEL TUBES & PIPES

SCOPE OF APPLICATION



GENERAL TUBES & PIPES (GTP)

These tubes & pipes for general application are used as elements for pipelines in a wide variety of industries, including oil & gas, chemical, petrochemical, power generation, processing, food, metallurgy and many others.



TUBING FOR NUCLEAR POWER PLANTS (NPP)

The main area of application for nuclear tubing are elements of NPP equipment for the primary and secondary circuits. Generally, this segment can be divided into three product application: steam generator tubing, heat exchanger tubing and pipelines.



BOILER TUBES

Boiler tubes are used in the heat generation industry as part of tubular components for boilers in power and industrial plants. In the energy sector, boiler tubes are installed in boilers of power plants to create steam for energy generation purposes. Industrial boilers generate steam and hot water for production processes in a wide variety of industries, including biomass burning, heating, pulp and paper production (waste heat boilers), waste-powered energy plants, and a number of chemical processes. Boilers are used in different types of combustion systems (coal, oil & gas). Boiler tubes usually resistant to high temperatures and pressure.



INSTRUMENTATION TUBING (IT)

High precision stainless steel tubing. Instrumentation tubes are widely used in the automotive industry (hydraulic and pneumatic systems, fuel supply systems, pressure gauge lines, cooling systems and brake cylinders), in control panels, processing plants, offshore pipelines and manifolds, oil & gas industry, semiconductor industry and chromatography.



HEAT EXCHANGER TUBING (HEX)

Heat exchanger tubes are designed to transfer heat and are mostly used in the heating, cooling, ventilation, condensation and evaporation processes. Heat exchanger tubes are key construction element to produce the following types of equipment: shell and tube heat exchangers, plate and frame heat exchangers, cooling chambers, air cooling systems, etc. Key consumers of heat exchanger tubes are chemical and petrochemical industries, power generation (including nuclear power plants), oil & gas and other industries.



HOLLOW BARS (HB)

Thick-walled seamless stainless steel tubes used for mechanical purposes. Tubes for machining are designed for ultimate transformation into numerous cylindrical parts and hollow products for different technical purposes. Products made from these tubes are sought by the food industry, transport, general engineering, chemical, petrochemical and other industries.



TYPES OF SURFACE TREATMENT

CYBERSTEEL offers a wide range of tubes & pipes with surfaces treated in a variety of ways, which results in different exteriors, specifications and prices. Pipe surfaces can be pickled (descaled), polished, ground or heat treated in a protective gas furnace.

Pipes undergo chemical, thermal or mechanical treatment at the end of the production cycle to achieve a marketable condition. The desired surface depends on the type of treatment.

Heat treatment is one way to improve metal properties and achieve a longer product life. The pipe is heated to a normalising temperature and cooled down in an accelerated process using advanced LOI technology, with its metal structure being released from internal stress, which translates into the required specifications.

HAVING INVESTED IN EQUIPMENT UPGRADES, CYBERSTEEL HAS MASTERED THE BRIGHT ANNEALING (SCALE-FREE) TECHNOLOGY THAT IS HEAT TREATMENT IN AN AIR TIGHT ENVIRONMENT TO AVOID SCALE FORMATION.

The pickling process is used to remove oxide scale and films following heat treatment. It ends up with treatment in a bath with a solution that helps generate a thin passive layer to protect metals from negative effects.

The grinding process is a mechanical method of treating pipe surfaces with grinding media, using different grain sizes to achieve the desired result. The choice of grain size depends on how rough the pipe was originally. The finest grain size results in a mirror-like surface.

The electropolishing process is used to remove the thinnest of roughs and flaws. This includes mechanical and electrolytic polishing. The mechanical one is similar to the grinding process but uses grinding media with a finer grit size, while the electrolytic polishing method relies on concentrated electrolytes. For instance, AISI TP321 steel pipes are polished in electrolytes (mixture of sulphuric and phosphoric acids), which is specifically intended for thin-walled pipes.

PRODUCT MIX

ASTM A 213/A 213M, ASME SA 213/SA 213M

STANDARD SPECIFICATION FOR SEAMLESS FERRITIC AND AUSTENITIC ALLOY-STEEL BOILER, SUPERHEATER, AND HEAT-EXCHANGER TUBES

STEEL GRADES

TP304, TP304L, TP316, TP316L, TP321, TP316Ti

RANGE OF SIZES

OUTSIDE DIAMETER			WALL THICKNESS							
			SCH 5S		SCH 10S		SCH 40S		SCH 80S	
NPS	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM
1/8	0.405	10.3			0.049	1.24	0.068	1.73	0.095	2.41
1/4	0.540	13.7			0.065	1.65	0.088	2.24	0.119	3.02
3/8	0.675	17.1			0.065	1.65	0.091	2.31	0.126	3.20
1/2	0.840	21.3	0.065	1.65	0.083	2.11	0.109	2.77	0.147	3.73
3/4	1.050	26.7	0.065	1.65	0.083	2.11	0.113	2.87	0.154	3.91
1	1.315	33.4	0.065	1.65	0.109	2.77	0.133	3.38	0.179	4.55
1 1/4	1.660	42.2	0.065	1.65	0.109	2.77	0.140	3.56	0.191	4.85
1 1/2	1.900	48.3	0.065	1.65	0.109	2.77	0.145	3.68	0.200	5.08
2	2.375	60.3	0.065	1.65	0.109	2.77	0.154	3.91	0.218	5.54
2 1/2	2.875	73	0.083	2.11	0.120	3.05	0.203	5.16	0.276	7.01
3	3.500	88.9	0.083	2.11	0.120	3.05	0.216	5.49	0.300	7.62

ASTM standard range of sizes tubes & pipes can be produced in other sizes and from other steel grades.

TYPE OF DELIVERY AND SURFACE CONDITION ^a

SYMBOL ^b	TYPE OF DELIVERY CONDITION	SURFACE CONDITION
CFD	Cold finished heat treated, descaled	Metallically clean
CFA	Cold finished bright annealed	Cold finished heat treated
CFG	Cold finished heat treated, ground	Metallically bright-ground, the type and degree of roughness shall be agreed at the time of enquiry and order ^c .
CFP	Cold finished heat treated, polished	Metallically bright-polished, the type and degree of roughness shall be agreed at the time of enquiry and order ^c .

^a Combinations of the different conditions may be agreed at the time of enquiry and order.

^b The symbols are abbreviations for type of condition. Example: CFD = Cold Finished Descaled.

^c The enquiry and the order shall indicate whether the roughness requirement applies on the internal or external tube surface, or internal and external.

ASTM A 312/A 312M, ASME SA 312/SA 312M

STANDARD SPECIFICATION FOR SEAMLESS, WELDED, AND HEAVILY COLD WORKED AUSTENITIC STAINLESS STEEL PIPES

STEEL GRADES

TP304, TP304L, TP316, TP316L, TP321, TP316Ti

RANGE OF SIZES

OUTSIDE DIAMETER			WALL THICKNESS							
			SCH 5S		SCH 10S		SCH 40S		SCH 80S	
NPS	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM
1/8	0.405	10.3			0.049	1.24	0.068	1.73	0.095	2.41
1/4	0.540	13.7			0.065	1.65	0.088	2.24	0.119	3.02
3/8	0.675	17.1			0.065	1.65	0.091	2.31	0.126	3.20
1/2	0.840	21.3	0.065	1.65	0.083	2.11	0.109	2.77	0.147	3.73
3/4	1.050	26.7	0.065	1.65	0.083	2.11	0.113	2.87	0.154	3.91
1	1.315	33.4	0.065	1.65	0.109	2.77	0.133	3.38	0.179	4.55
1 1/4	1.660	42.2	0.065	1.65	0.109	2.77	0.140	3.56	0.191	4.85
1 1/2	1.900	48.3	0.065	1.65	0.109	2.77	0.145	3.68	0.200	5.08
2	2.375	60.3	0.065	1.65	0.109	2.77	0.154	3.91	0.218	5.54
2 1/2	2.875	73	0.083	2.11	0.120	3.05	0.203	5.16	0.276	7.01
3	3.500	88.9	0.083	2.11	0.120	3.05	0.216	5.49	0.300	7.62

Pipes and tubes can be produced in other sizes and from other steel grades.

EN 10216-5

SEAMLESS STEEL TUBES FOR PRESSURE PURPOSES

STEEL GRADES

1.4301 [X5CrNi18-10], 1.4306 [X2CrNi19-11], 1.4307 [X2CrNi18-19], 1.4401 [X5CrNiMo17-12-2], 1.4404 [X2CrNiMo17-12-2], 1.4541 [X6CrNiTi 18-10], 1.4571 [X6CrNiMoTi17-13-2]

DIMENSION TOLERANCES

TOLERANCES ON D		TOLERANCES ON T	
D 3	± 0.75% or ± 0.3 mm Whichever is the greater	T 3	± 10% or ± 0.2 mm Whichever is the greater
D 4*	± 0.5% or ± 0.1 mm Whichever is the greater	T 4*	± 7.5% or ± 0.15 mm Whichever is the greater

* subject to approval

TYPE OF DELIVERY AND SURFACE CONDITION ^a

SYMBOL ^b	TYPE OF DELIVERY CONDITION	SURFACE CONDITION
CFD	Cold finished heat treated, descaled	Metallically clean
CFA	Cold finished bright annealed	Cold finished heat treated
CFG	Cold finished heat treated, ground	Metallically bright-ground, the type and degree of roughness shall be agreed at the time of enquiry and order ^c .
CFP	Cold finished heat treated, polished	Metallically bright-polished, the type and degree of roughness shall be agreed at the time of enquiry and order ^c .

^a Combinations of the different conditions may be agreed at the time of enquiry and order.

^b The symbols are abbreviations for type of condition. Example: CFD = Cold Finished Descaled.

^c The enquiry and the order shall indicate whether the roughness requirement applies on the internal or external tube surface, or internal and external.

OUTSIDE DIAMETER, MM	WALL THICKNESS, MM																
	1	1,2	1,6	2	2,3	2,6	2,9	3,2	3,6	4	4,5	5	5,6	6,3	7,1	8	8,5
6																	
8																	
10																	
10,2																	
12																	
12,7																	
13,5																	
14																	
16																	
17,2																	
18																	
19																	
20																	
21,3																	
22																	
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25,4																	
26,9																	
30																	
31,8																	
32																	
33,7																	
35																	
38																	
40																	
42,4																	
44,5																	
48,3																	
51																	
54																	
57																	
60,3																	
63,5																	
70																	
76,1																	
82,5																	
88,9																	

Pipes and tubes in other sizes are available upon request. Availability of pipes and tubes longer than 7,000 mm depends on the size.



\$20,3

MLN

**INVESTMENT
ON MANUFACTURING
IMPROVEMENTS**

TECHNOLOGY

PRODUCTION FACILITIES

CYBERSTEEL production facilities relies on advanced equipment from the most reputable global and domestic manufacturers. As a result, the company offers a wide range of seamless stainless steel pipes, including unique ones with a diameter and a wall thickness of 0.3 mm and from 0.05 mm, respectively.

Equipment used:

- Loeser grinding machines
- Reika straightener
- BRONX straighteners
- Prestar tube finishing and comprehensive testing line
- Cold pilger mills
- HEMO degreasing machine
- LOI Thermprocess roller hearth furnace
- Prestar band saw machine
- KROPUS, ROTA comprehensive testing systems
- AVEK comprehensive testing systems for inner pipe surfaces

MANUFACTURING PROCESS

CYBERSTEEL employs two main processes to manufacture pipes and tubes. The production route and the scope of finishing operations may vary depending on specification requirements.



TUBING FOR CIVIL AVIATION



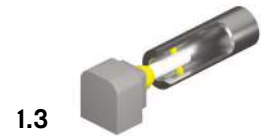
1. Preparation of hot-finished mother pipe



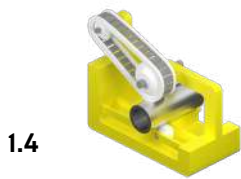
1.1 Straightening



1.2 End cutting



1.3 Inner surface boring



1.4 Grinding with Loeser machine



1.5 Degreasing



1.6 Heat treatment



1.7 Descaling



1.8 Straightening



1.9 Inspection of inner and outer surfaces



2. Greasing



3. Cold pilgering



4. Degreasing



5. Heat treatment



6. Descaling



7. Straightening



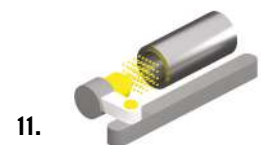
8. End cutting



9. Inspection of inner and outer surfaces, gauging



10. Repeat stages 2...9 (3x)



11. Shot blasting of inner surfaces



12.

Roller-type cold rolling



13.

Degreasing



14.

Drawhead swaging



15.

Heat treatment



16.

Cold drawing



17.

Drawhead cutting



18.

Degreasing



19.

If necessary, repeat stages 14...18 (1x...3x)



20.

Heat treatment



21.

Descaling



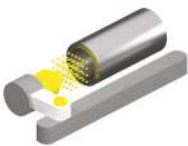
22.

Straightening



23.

End cutting



24.

Shot blasting of inner surfaces



25.

Outer surface grinding



26.

Inspection of inner and outer surfaces, gauging



27.

Sampling



28.

US testing



29.

Weighing, packaging



LONG PIPES FOR NUCLEAR POWER PLANTS (NPPS)



1. Preparation of hot-finished mother pipe



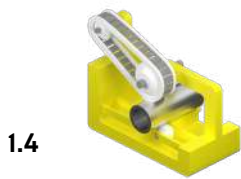
1.1 Straightening



1.2 End cutting



1.3 Inner surface boring



1.4 Grinding with Loeser machine



1.5 Degreasing



1.6 Heat treatment



1.7 Descaling



1.8 Straightening



1.9 Inspection of inner and outer surfaces



2. Greasing



3. Cold pilgering



4. Degreasing



5. Heat treatment



6. Descaling



7. Straightening



8. End cutting



9. Inspection of inner and outer surfaces, gauging



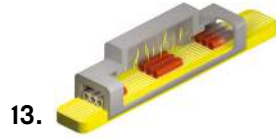
10. Repeat stages 2...9



11. Cold pilgering



12. Degreasing (HEMO)



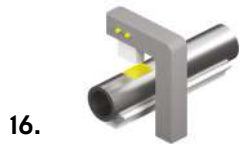
13. Heat treatment (LOI furnace)



14. Straightening



15. Grinding with Loeser machine



16. Laser marking at leading ends



17. US, EC testing of outer surfaces



18. Endoscopic testing of inner surfaces



19. EC testing of inner surfaces



20. Laser marking at trailing ends



21. Sampling



22. End cutting



23. Outer surface labelling



24. Inspection of outer surface



25. Weighing, packaging



LABELLING AND PACKAGING OPTIONS

LABELLING

CYBERSTEEL's finished products are paint or laser marked with CYBERSTEEL trademark. Labelling is mandatory for 10–159 mm pipes.

PACKAGING OPTIONS

- **WOODEN OR VENEER BOXES AND PACKAGING MATERIAL WITH VOLATILE CORROSION INHIBITORS**
- **FLEXIGUARD®**
A multi-layer material based on extra strong woven polymeric fabric and filler made of high-duty material in the form of slats differing in thickness and width.

CONTACTS

PRODUCTION SITE:

RUSSIA, PERVOURALSK

BRANCH OFFICE:

RUSSIA, MOSCOW, SKOLKOVO INNOVATION CENTER

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